

A black and white photograph of a cluttered research lab. Several people are seated at a long desk, working on laptops. The desk is covered with various items, including papers, cables, and a water bottle. Shelves in the background are filled with books and other equipment. The overall atmosphere is one of intense, somewhat chaotic, research activity.

Why Europe will never have Accountability in Research

Europeans can generate great fervor for the idea that research must be “accountable”. But there are at least three powerful, structural reasons that arriving at a shared notion of who is accountable, to whom, and for what, will be particularly difficult to achieve here.

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Introduction

We are never going to have accountability in research – not in Europe, and for that matter not anywhere else, either. At least, we'll never see the grand, “unified theory” type of accountability to society at large where all constituencies (academic researchers, government researchers, funding agencies, industrial researchers, corporate management, university administrators, national and supranational governments) agree on the goals and means to achieve those goals to help society. Perhaps we will not see it even at more micro levels. And why not?

- First, too many different constituencies, are concerned and their views are not only inconsistent – which might be workable – but also even contradictory, leading to tensions between different types of research. *Which of them should define standards of accountability?*
- Compounding this situation is the well-documented agency problem of doing research in general, in which it is difficult to monitor or provide correct incentives to researchers, leading to tensions between overseers and researchers. *How can we ensure that scientists and researchers are actually doing what we want them to do?*
- We have multiple stakeholders who fund research, and often several are simultaneously funding the same recipients, leading to tension between different sources of funding. *Which, if any, is the researcher most accountable to?*
- Finally, we have the added complexity of the European context, in which a supranational agent / government / bureaucracy / source of funding is imposed upon member states, leading to tension between the EU and its own member states. Those states have their own research institutions, agendas – and notions of accountability. *Whose “society” should research be accountable to?*

These are my conclusions after listening to a day of presentations on this subject by a distinguished collection of speakers from industry, academia, and the public sector. The speakers crystallized thoughts that I have been pondering some years (see Figure 1).

Tensions between different research contexts

Researchers in different contexts are faced with institutional objectives that are quite different – yet different constituencies or performers of research can and do claim that they perform research for societal benefit. For example, large industrial concerns employ thousands (if not tens or even hundreds of thousands) of people when the firms' in-house research leads to success. There are other direct benefits from research in terms of the development of new products, processes, and services. For pharmaceutical companies, there is no doubt that research leads to products that save lives and prevent disease. Of course, this does not change the fact that private enterprises must turn a profit in order to make investments in R&D in the first place.

Academic researchers, on the other hand, usually do not have a direct profit motive in their lines of inquiry, nor do they necessarily care about the eventual application of their research. Many academics, especially those funded directly through their universities, have the freedom and the motivation to pursue curiosity-driven research no matter what alley it leads them down. However – and though this is an old criticism, it has been around a while because there is some truth to it – it has been argued, including at the Foresight conference, that many academics primarily perform research to further their own careers. This careerist attitude allegedly started in the US, and has now spread all over the world, with researchers discussing how many times their publications got a “hit” in the top journals without ever revealing (because they think it is unimportant?) what the subject of their research actually was. One presenter at the Foresight conference pointed out that scientists are no longer seen as defenders of truth, but more as defenders of their own interests in “media-driven” (or publicity-driven) science.

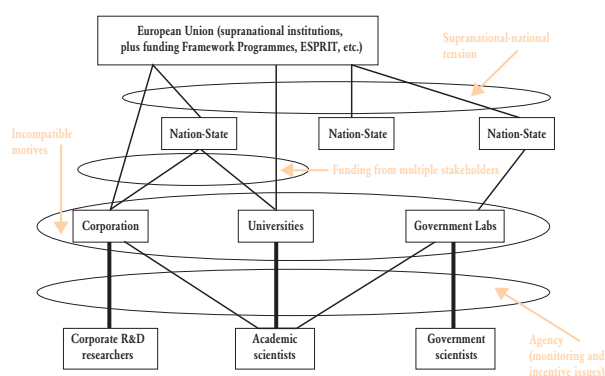
One thing that has changed in recent years, and may have permanently altered the equation, has been the worldwide explosion in university intellectual property development. It involves an enormous growth in university patenting, and the subsequent prominence of “technology transfer” offices that attempt to commercialize the intellectual property of universities (Henderson, Jaffe, & Trajtenberg, 1998, document a compound annual growth rate for university patenting of over 11% across the 27-year period from 1965-1992). Thus we have witnessed a growing profit motive within university administrations, which creates additional pressures on academic. Despite the above criticisms, there can be no doubt that a fair amount of academic research does help society, both by enabling downstream technological advances, and by contributing to thinking about bigger, longer-term questions. Additional profit motives for universities, however, do little to align universities with industry in terms of accountability; they just reduce the impartial, long-term nature of academic science (see Bok 2003).

Government is involved in at least two ways. The first is by funding third-party research (under science and technology policy, which I will discuss below), and the second is by funding its own research under its own auspices. Governments also indirectly fund research through paying much of the budgets of their national universities. In government-funded national labs and national institutes research ranges from the basic to the applied, but usually with some national interest in mind, whether it be defense, health, or even the employment of scientists to prevent “brain drain.”

The thing to note here is not the differences per se between the objectives of these various groups, which are pretty well known and documented, *but rather the fact that they are, at times, more or less incompatible and contradictory.* This distinction was pointed out, directly or indirectly, by several presenters at the Foresight Conference. Take the case of



Figure 1:



universities publishing potential drug discoveries in the normal course of doing research. On one hand, this might appear to carry a huge benefit for society, something akin to “free software” or “open science.” On the other hand, pharmaceutical companies complain that such publications completely undercut their ability to produce the drug in question, because “open science” subverts rents from exclusive intellectual property. The companies also contend that universities have no means to bring such drugs to market – meaning, in sum, that the drug will never be produced by anyone. Although it seems hypocritical for pharmaceutical companies to claim that “the patient is waiting” and “we only want to help society”, while at the same time declining to produce drugs whose compounds are published in the scientific literature, they do have a bit of a point. If they cannot make any money for their shareholders because anyone can make their products, in the long run they will not be around to fund the next big drug discovery. But once again, the drug in question will not be produced.

Each in their own ways, both industry and the academy are concerned with the accountability of research and with helping society. Yet they furnish an example of how two agents, each of whom wants to hold their research “accountable” to society, are actually at odds with each other and with the best interests of society as a whole.

Tensions between overseers and researchers

A photo making its way around the Internet shows a frowning executive wearing a t-shirt emblazoned with the words “We spent \$2 billion on R&D and all we got was this lousy t-shirt.” One of the reasons that we often only get a lousy t-shirt for our billions is that it is notoriously difficult to monitor and control researchers, whether they be based in government, universities, private companies, or any other organisation. Without spending too much time on this, let us note that the phenomenon has been pointed out by numerous scholars ranging from economists to psychologists to sociologists. How, then, can we now make researchers “accountable”? Because if overseers (called “principals” by economists) cannot monitor or control what researchers (called “agents,” hence the term “agency problem”) do when those overseers are not looking over their shoulder, we might conclude that it would be difficult or even impossible to make the researchers accountable.

The usual procedures will not be much help here. Input-based measures and evaluation procedures are difficult to monitor and can be downright detrimental to R&D. One never knows exactly what a scientist or engineer is doing or working on while conducting R&D. Inventing strict rules and controls is bad from both a technology strategy perspective and a human resources perspective. For technology strategy, strict controls reduce serendipity, while for human resources, strict controls de-motivate researchers. Certainly, the latter effect depends to some extent on the constituency – a given research or set of researchers may be more or less discouraged by regulations – but even industrial researchers may not accept overly tight rules for conducting independent inquiries in R&D.

On the other hand, output-based measures and evaluation procedures are extremely “noisy” (in other words, they are very imperfect measures and procedures that do not directly measure effort). If managers (or principals in any sense) base all evaluation on output (new products, patents, publications, and so forth), incentives shift away from doing risky work to covering “safe” bets that produce exactly the output sought. As an example, many US universities have moved entirely to “counting” the number of publications for each researchers/scholar, with a certain target number as the sole criterion for getting a promotion. The result is a well-documented tendency to produce large numbers of articles based on trivial research results that are easily published. The overall conclusion here is that it is difficult to set up incentive plans that reward high efforts in R&D. We must instead rely on scientific curiosity, combined with plans that do not excessively *punish* the very things that we are trying to accomplish.

Tensions between funding sources

Not only do we have different constituencies with contradictory positions regarding the objectives and outcomes of research, but we often have researchers getting funding from (and therefore, in some sense, owing accountability to) these different constituencies. For example, researchers in large firms often receive R&D funding from their central R&D labs and government grants at the same time. Likewise, academic scientists might receive research support from their universities, funded via endowments, further support from their universities through indirect funding from government budgets, support from the government directly via grants, and support from private enterprises. When more than one of these sources of funding is involved, I propose – based on my own experience, confirmed by some of the *Foresight* presentations – that accountability to the external source is almost always trumped by accountability to an internal source. This would indicate some kind of organizational power argument. Thus government funding, when combined with internal funding, ends up only partially serving the needs of the government, and only inasmuch as there is no conflict between the funders' objectives. Likewise, corporate funding of academic research only partially serves the research needs of the corporations (though it may also serve other needs of the corporation, including public relations and tax considerations), and again only inasmuch as there is no conflict between the objectives of the researcher, the university, and the corporation. But as one can imagine, there are often conflicts.

I am not against science and technology policies; on the contrary, I believe such policies have helped many countries (including the US and European countries) both to produce results and to build networks of researchers that span academia, industry, and government. However, these policies tend to multiply funding sources for research, and thus to generate the disappointments and conflicts described above. In the process, the very existence of a science and technology policy makes global accountability less likely.

Tensions between the EU and its member states

Adding to the above complexity and potential problems for a unified approach to accountability, we have the additional factor of the way the EU organises for innovation and R&D. As most of us know, many member states of the European Union, especially the larger economies, provide their own large-scale funding of research through their own national science foundations, or systems of national labs, and so on. For example, France allocated 1.08% of its national budget to R&D in 1996, and this percentage has dropped to 0.93% as of 2000, while at the same time the EU's direct funding has increased dramatically, both in terms of euros spent and in terms of percentage of budget (Key Figures 2002). The EU itself directly funds research on a fairly large scale, through programs such as the 6th Framework, which has a budget of over 17 billion euros. Between the national and supranational level, there may not be completely overlapping requirements in terms of accountability, by virtue of the fact that the national governments are concerned with promoting the interests of

their nations (and rightly so), while the EU is concerned with the entire community.

Compare this to the US, where the Federal government funds R&D via several agencies, such as the National Institutes of Health, the Defense Advanced Research Project Agency, and so forth. The difference is that at the level of government, the separate US states provide very little funding. When we add this difference to the other structural problems I discussed above, the potential for conflicting requirements for accountability rises.

Conclusion

The one bright spot in this accountability tangle is that at least, all the above constituencies think they are doing their research for the benefit of society. Regardless of the potential for conflict among different interpretations of that ideal, we can hope that maybe, eventually, there will be a way to reconcile some of the various views of accountability, starting from this shared belief. However, in the short run neither I, nor, apparently, other participants at the Foresight Conference, see how that will happen. Who decides what kind of accountability applies to whom? Can we ever agree as a society on this question? Should power within organizations be the sole criterion for determining accountability?

In the end, we must also bring the discussion back to the European context, as this was its original purpose. If we think about it, the only additional complexity that Europe faces, relative to the US (or Japan, or other points of comparison) resides in the differing goals of the EU, as a "government" and a major source of research funding, and of the member states, which also have long and proud histories of funding R&D and demand accountability to one degree or another. All the other problems or issues outlined above hold equally well for the US as for Europe. Yet somehow, the debate over the accountability of research never seems to inspire the same level of fervor across the Atlantic as it does here in Europe. Are we Europeans asking for too much where accountability is concerned?

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